

DaimlerChrysler AG

Patent Claims

- 5 1. A toroidal regulating device for regulating the torque of a toroidal variator, in particular of a motor vehicle, with at least one regulator and with a first regulating variable which can be fed back to the regulator and the formation of which includes at least  
10 one first characteristic quantity for a transmitted torque in the toroidal variator, characterized in that at least one second regulating variable ( $X_2$ ) can be fed back, the formation of which includes at least one second characteristic quantity for a pivoting speed of  
15 an intermediate roller (10) of the toroidal variator (11).
2. The toroidal regulating device as claimed in claim 1, characterized in that the determination of the  
20 second characteristic quantity includes at least one characteristic quantity for a rotational speed at the input of the toroidal variator (11) and at least one characteristic quantity for a rotational speed at the output of the toroidal variator (11).
- 25 3. The toroidal regulating device as claimed in claim 1 or 2, characterized in that the second regulating variable ( $X_2$ ) is the result of a multiplication by at least one proportionality factor ( $K$ ).
- 30 4. The toroidal regulating device as claimed in claim 3, characterized in that the proportionality factor ( $K$ ) is dependent on at least one operating variable.
- 35 5. The toroidal regulating device as claimed in one of the preceding claims, characterized in that the second regulating variable ( $X_2$ ) can be fed to a manipulated variable ( $Y'$ ) of the regulator ( $G_R$ ).

6. The toroidal regulating device as claimed in one of the preceding claims, characterized in that the determination of the first characteristic quantity  
5 includes at least one characteristic quantity for a pressure in a piston/cylinder unit (17) of the toroidal variator (11).

7. The toroidal regulating device as claimed in one of the preceding claims, characterized in that the  
10 regulator ( $G_R$ ) is designed as a PID regulator.

8. A method with a toroidal regulating device as claimed in one of the preceding claims, in which, in  
15 addition to a first regulating variable ( $X_1$ ), the formation of which includes at least one first characteristic quantity for a transmitted torque in the toroidal variator (11), at least one second regulating variable ( $X_2$ ) is fed back, the formation of which  
20 includes at least one second characteristic quantity for a pivoting speed of an intermediate roller (10) of the toroidal variator (11).

9. The method as claimed in claim 8, characterized in  
25 that the second regulating variable ( $X_2$ ) is fed to a manipulated variable of the regulator ( $G_R$ ).

10. A toroidal transmission with a toroidal regulating device as claimed in one of claims 1 to 7 and with a  
30 castor angle smaller than  $5^\circ$ .